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SPECIFICATION

1. Title of invention

Stick cosmetic

2. Claims

(1) A stick cosmetic that is characterized in that it blends, as mandatory ingredients, silicone oil, ester oil that consists of fatty acids and aliphatic alcohol, has a branching structure within its molecule, and has a solidification point of 0°C or less, methyl hydrogen polysiloxane-treated pigment, and solid fats and oils.

(2) A stick cosmetic as in claim (1) in which one or two or more species of silicone oil selected from a group consisting of methyl polysiloxane whose viscosity at 25°C is no greater than 50 centistokes [cs] and cyclic polymethyl siloxane are blended at 10-50 wt% with respect to the total weight of the stick cosmetic.

(3) A stick cosmetic as in claim (1) in which ester oil that consists of fatty acids and aliphatic alcohol, has a branching structure within its molecule, and has a solidification point of 0°C or less is blended at 5-50 wt% with respect to the total weight of the stick cosmetic.

(4) A stick cosmetic as in claim (1) in which methyl hydrogen polysiloxane-treated pigment is blended at 5-60 wt% with respect to the total weight of the stick cosmetic, and solid fats and oils that are normally blended in cosmetics and have a melting point of 30°C or less are blended at 1-20 wt% with respect to the total weight of the stick cosmetic.

3. Detailed Description of the Invention

Field of the invention

This invention concerns a stick cosmetic that has the same powdery use feel as powder foundation.

Background of the invention

Conventional stick cosmetics, although having excellent features such as good adhesion to the skin, water resistance in their coating, and resistance to makeup breakdown, are not very well liked, because they have adhesiveness in their coating as well as, after being coated on, stickiness, shininess, and a slimy feeling.

One way that has been thought of to solve such problems is to blend low-viscosity silicone oil into an ordinary stick cosmetic, but because of the poor compatibility of silicone oil, solid fats and oils, and pigment, and the crystallinity of solid fats and oils, said cosmetic has the disadvantage of causing separation of the oil content due to thermal shock, sweating, powdering, and cracking, which significantly detract from the value of a commercial product.

As a result of repeated diligent study to overcome these defects and come up with a stick cosmetic that has the same powdery use feel as a powder foundation, the inventor of this invention arrived at the completion of this invention having discovered that when letting the silicone oil, pigment, cosmetic fats and oils, and other components flow into a mold and forming them into a stick, by adding ester oil that consists of fatty acids and aliphatic alcohol, has a branching structure in its molecule, and has a solidification point of 0°C or less, as well as heat-treating the pigment with methyl hydrogen polysiloxane and making it hydrophobic, crystallization of the solid fats and oils is impeded, and the compatibility of the silicone oil, solid fats and oils, and pigment is increased, thereby yielding a stick cosmetic that does not cause separation of the oil content due to thermal shock, sweating, powdering, and cracking, and that has the same powdery use feel as a powder foundation.

Development of the invention

This invention provides a stick cosmetic that is characterized in that it blends, as mandatory ingredients, silicone oil, ester oil that consists of fatty acids and aliphatic alcohol, has a branching structure within its molecule, and has a solidification point of 0°C or less, methyl

hydrogen polysiloxane-treated pigment, and solid fats and oils. The stick cosmetic of this invention, in addition to having the advantages of conventional stick cosmetics such as good adhesion to the skin, water resistance in the coating, and resistance to makeup breakdown, also does not cause separation of the oil content, sweating, powdering, and cracking, has adhesion of the coating, does not produce stickiness, shininess, or a slimy feeling after it is coated on, and has the same powdery use feel as a powder foundation.

Cited as the silicone oil to be used in the cosmetic of this invention is methyl polysiloxane whose viscosity at 25°C is no greater than 50 centistokes (corresponding to an average degree of polymerization of 50 or less) and which is given by the general formula

or cyclic polymethyl siloxane given by the general formula

(in which m is an integer from 3 to 10), in which one or two or more species of these are blended in a range of 10-50 wt% with respect to the total weight of the cosmetic. When the blended quantity is less than 10 wt%, stickiness, shininess, and a slimy feeling appear after it is coated on. And if it is greater than 50 wt%, molding becomes difficult, which makes it impractical.

What can be cited as the ester oil that consists of fatty acids and aliphatic alcohol, has

a branching structure within its molecule, and has a solidification point of 0°C or less are, for example, isopropyl isostearate, isocetyl myristate, cetyl isoocatate, octyl dodecyl neodecanate, and one or two or more species of them are blended in a range of 5-50 wt% with respect to the total weight of the cosmetic. When the blended quantity is less than 5 wt%, cracking caused by thermal shock occurs, which is undesirable, and when it is greater than 50 wt%, the moldability becomes bad and manufacturing becomes difficult.

The methyl hydrogen polysiloxane-treated pigment used in the cosmetic of this invention is obtained by treating part or all of the surface of the pigment used in this invention with methyl hydrogen polysiloxane; normally 0.5-15 wt%, and preferably 1.0-12 wt%, of methyl hydrogen polysiloxane is used, based on the total weight of the pigment. The blended quantity of hydrogen polysiloxane-treated pigment is 5-60 wt% with respect to the total weight of the cosmetic. If the blended quantity is less than 5 wt%, oil sweating, separation, and powdering occurs, which is undesirable, and if it is greater than 60 wt%, the fluidity at high temperature becomes very bad, and it becomes difficult to mold it into a stick.

As the solid fats and oils, one can cite what is normally blended in cosmetics, such as, for example, solid paraffin, carnauba wax, candelilla wax, ethylene glycol distearate, ethylene glycol monostearate, glycerin monostearate, palmitic acid, hydrocarbons such as cetyl alcohol that have a melting point of 40°C or higher, wax, fatty acids, higher alcohol, and surfactants, and they are blended in a range of 1-20 wt% with respect to the total weight of the cosmetic. If the blended quantity is less than 1 wt%, it becomes impossible to keep the cosmetic in the shape of a stick, and if it is greater than 20%, the hardness of the cosmetic increases, making it impractical.

Also, as necessary, one may add to the stick cosmetic of this invention, insofar as they do not damage the properties of said cosmetic, talc, rouge, titanium oxide, yellow iron oxide, black

iron oxide, mica, sericite, kaolin, nylon powder, styrene powder, polyethylene powder, pigments such as methyl polymethacrylate powder, powder, coloring or its lake, fluid paraffin, oleic acid, olive oil, squalane, lanolin, vaseline, or other fats and oils.

The stick cosmetic of this invention can be manufactured by the same usual methods as ordinary stick cosmetics or lipstick.

The stick cosmetic of this invention obtained in this way is an improvement to the drawbacks of previous stick cosmetics and provides the same powdery use feel as powder foundation.

Working examples

Next, we describe this invention in further detail, citing working examples and reference examples.

Working example 1

Stick cosmetics were manufactured according to the usual method by the blend combinations given in Table 1 below. The stick cosmetics obtained were kept for 20 cycles, one cycle being 12 hours at -10°C and 12 hours at +40°C, then they were evaluated for oil separation due to thermal shock, sweating, powdering, and cracking; the results are presented together in Table 1. The blend compositions given in Table 1 are proportions with respect to the total weight of the stick cosmetic.

The standards for each evaluation are as follows.

<oil separation and sweating>

◎: very good

○: good

△: some sweating

x: oil separation

<powdering>

◎: very good

○: good

△: some powdering

x: severe powdering

<cracking>

◎: very good

○: good

△: some cracking

x: breaking

In addition, use testing was done from early October to mid-October by 52 panelists using the obtained stick cosmetics and conventional stick cosmetics, an evaluation was made by the following standards for extensibility, stickiness, shininess, powdery feeling, moist and supple feeling, finish, and makeup retention, and the averages were expressed as follows:

Extensibility, moist and supple feeling, finish, makeup retention:

- 5 points: very good
- 4 points: good
- 3 points: ordinary
- 2 points: bad
- 1 point: very bad

Stickiness, shininess

- 5 points: none at all
- 4 points: almost none
- 3 points: some
- 2 points: present
- 1 point: present to a considerable extent

Powdery feeling:

- 5 points: very strong
- 4 points: strong

3 points: ordinary

2 points: weak

1 point: very weak

The averages were expressed as follows.

⊙: 4.5 points or more

○: 3.5 points or more but less than 4.5 points

△: 2.5 points or more but less than 3.5 points

x: 1.5 points or more but less than 2.5 points

xx: less than 1.5 points

The results are presented in Table 2.

Working examples 2 and 3

Stick cosmetics were manufactured by the blend compositions given in Table 1 below, in the same way as in working example 1. The results are presented in Table 1 in the same way.

Reference examples 1-4

Stick cosmetics were manufactured by the blend compositions given in Table 1 below, in the same way as in working example 1. The results are presented in Table 1 in the same way.

Table 1

| Components | Working examples | | | Reference examples | | | |
|---|------------------|------|------|--------------------|------|------|------|
| | 1 | 2 | 3 | 1 | 2 | 3 | 4 |
| Isopropyl myristate (solidification point 8°C) | - | - | 7.3 | 20.0 | - | - | 7.3 |
| Cetyl isooctanate (solidification point -3°C) | - | 5.0 | - | - | - | - | - |
| Isopropyl isostearate (solidification point -15°C) | 20.0 | - | 20.0 | - | - | - | 20.0 |
| Hexyl laurate (solidification point -4°C) | - | - | - | - | 20.0 | - | - |
| Fluid paraffin (70 c/s) | - | - | - | - | - | 20.0 | - |
| Methyl polysiloxane (10 centistokes) | 25.0 | 25.0 | 40.0 | 25.0 | 25.0 | 25.0 | 40.0 |
| Candelilla wax | 2.5 | 4.0 | 16.5 | 2.5 | 2.5 | 2.5 | 16.5 |
| Ethylene glycol distearate | 2.3 | 2.8 | 2.5 | 2.3 | 2.3 | 2.3 | 2.5 |
| Propylparaben | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Methyl hydrogen polysiloxane-treated titanium oxide | 5.0 | 15.0 | 5.0 | 5.0 | 5.0 | 5.0 | 2.0 |
| Methyl hydrogen polysiloxane-treated talc | 5.0 | 20.0 | - | 5.0 | 5.0 | 5.0 | - |
| Methyl hydrogen polysiloxane-treated mica | 10.0 | 19.0 | - | 10.0 | 10.0 | 10.0 | - |
| Talc | 5.0 | - | - | 5.0 | 5.0 | 5.0 | - |
| Kaolin | 6.0 | - | - | 6.0 | 6.0 | 6.0 | - |
| Rouge | 1.5 | 1.5 | 0.8 | 1.5 | 1.5 | 1.5 | 0.8 |
| Black iron oxide | 0.5 | 0.5 | 0.2 | 0.5 | 0.5 | 0.5 | 0.2 |
| Yellow iron oxide | 2.0 | 2.0 | 1.0 | 2.0 | 2.0 | 2.0 | 1.0 |
| Nylon powder | 5.0 | 5.0 | 6.5 | 5.0 | 5.0 | 5.0 | 6.5 |
| Titanium oxide | 10.0 | - | - | 10.0 | 10.0 | 10.0 | 3.0 |
| Total | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Oil separation, sweating | ⊙ | ○ | ⊙ | ○ | △ | x | X |
| Powdering | ⊙ | ○ | ⊙ | ○ | x | x | X |
| Cracking | ⊙ | ⊙ | ⊙ | x | △ | x | ⊙ |

As is clear from Table 1, in all the working examples 1-3, which are based on this invention, oil separation, sweating, powdering, and cracking do not occur, and superior properties are shown, whereas otherwise satisfactory results were not obtained: in reference example 1, which does not include ester oil that consists of fatty acids and aliphatic alcohol, has a branching structure within its

molecule, and has a solidification point of 0°C or less, breaking occurs, in reference example 2, sweating, severe powdering, and cracking occur, in reference example 3, oil separation, severe powdering, and breaking occur, and in reference example 4, which does not contain the prescribed quantity of methyl hydrogen polysiloxane-treated pigment, oil separation and severe powdering occur.

Table 2:

| Stick cosmetic | Extensibility | Stickiness | Shininess | Powdery feeling | Moist and supple feeling | Finish | Makeup retention |
|-------------------|---------------|------------|-----------|-----------------|--------------------------|--------|------------------|
| Working example 1 | ○ | ⊙ | ○ | ○ | ⊙ | ⊙ | ⊙ |
| Previous products | x | x | x | xx | ⊙ | x | ○ |

As shown in Table 2, with this invention one can obtain a stick cosmetic that eliminates the stickiness and shininess that were defects in previous stick cosmetics, and that gives the same powdery use feeling as powder foundation.

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